

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. **(Currently Amended)** A pharmaceutical-fusion protein composition comprising a fusion protein molecule of a binding protein and an antibody Fc region having complex type N-glycoside-linked sugar chains, wherein the complex type N-glycoside-linked sugar chains have a structure in which fucose is not bound to N-acetylglucosamine in the reducing end in the sugar chains.
2. **(Original)** The fusion protein composition according to claim 1, wherein the complex type N-glycoside-linked sugar chains are sugar chains in which 1-position of fucose is not bound to 6-position of N-acetylglucosamine in the reducing end through  $\alpha$ -bond in the sugar chains.
3. **(Currently Amended)** The fusion protein composition according to claim 1-~~or 2~~, wherein the antibody Fc region is an IgG class of a human antibody.
4. **(Original)** The fusion protein composition according to claim 3, wherein the antibody Fc region is an IgG1 class of a human antibody.
5. **(Original)** The fusion protein composition according to claim 4, wherein the antibody fusion protein composition comprises an IgG1 class heavy chain constant region domain 2 (CH<sub>2</sub>) of a human antibody.

6. **(Original)** The fusion protein composition according to claim 5, wherein the fusion protein composition comprises a hinge region, a heavy chain constant region domain 2 (CH<sub>2</sub>) and a heavy chain constant region domain 3 (CH<sub>3</sub>) of a human IgG1 class antibody.

7. **(Currently Amended)** The fusion protein composition according to ~~any one of claims 1 to 6~~, wherein the binding protein comprises at least one protein selected from the group consisting of a binding fragment of an antibody, a soluble receptor and a ligand protein.

8. **(Original)** The fusion protein composition according to claim 7, wherein the binding fragment of an antibody comprises at least one polypeptide comprising an antibody heavy chain variable region (VH) and an antibody light chain variable region (VL).

9. **(Original)** The fusion protein composition according to claim 8, wherein the polypeptide comprising an antibody heavy chain variable region (VH) and an antibody light chain variable region (VL) is a single-chain antibody.

10. **(Original)** The fusion protein composition according to claim 7, wherein the binding fragment of an antibody is a single-chain antibody.

11. **(Original)** The fusion protein composition according to claim 7, wherein the binding fragment of an antibody comprises a polypeptide comprising two kinds of antibody heavy chain variable regions (VH) and two kinds of antibody light chain variable regions (VL).

12. **(Original)** The fusion protein composition according to claim 11, wherein the polypeptide comprising antibody heavy chain variable regions (VH) and light chain variable regions (VL) is a single-chain antibody.

13. **(Original)** The fusion protein composition according to claim 7, wherein the binding fragment of an antibody is a bispecific single-chain antibody.

14. **(Original)** The fusion protein composition according to claim 7, wherein the soluble receptor is a soluble TNF (tumor necrosis factor) receptor II.

15. **(Original)** The fusion protein composition according to claim 15, wherein the soluble receptor comprises the amino acid sequence represented by SEQ ID NO:64.

16. **(Currently Amended)** The fusion protein composition according to claim 14 ~~or 15~~, wherein the fusion protein is produced by FERM BP-8499.

17. **(Original)** The fusion protein composition according to claim 7, wherein the ligand protein is LFA-3 (leukocyte function antigen-3).

18. **(Original)** The fusion protein composition according to claim 16, wherein the ligand protein comprises the amino acid sequence represented by SEQ ID NO:65.

19. **(Currently Amended)** The fusion protein composition according to claim 17 ~~or 18~~, wherein the fusion protein is produced by FERM BP-8500.

20. **(Currently Amended)** The fusion protein composition according to ~~any one of claims 1 to 19~~, wherein the fusion protein composition is a dimer.

21. **(Currently Amended)** A transformant obtainable by introducing a DNA encoding the fusion protein according to ~~any one of claims 1 to 20~~ into a host cell.

22. **(Original)** The transformant according to claim 21, wherein the host cell is a cell in which a genome is modified so that an enzyme relating to synthesis of an intracellular sugar nucleotide, GDP-fucose or an enzyme relating to a modification of a sugar chain in which 1-position of fucose is bound to 6-position of N-acetylglucosamine in the reducing end through  $\alpha$ -bond in the complex type N-glycoside-linked sugar chain is inactivated.

23. **(Original)** The transformant according to claim 22, wherein the host cell is a cell in which all of alleles on a genome encoding an enzyme relating to synthesis of an intracellular sugar nucleotide, GDP-fucose or an enzyme relating to a modification of a sugar chain in which 1-position of fucose is bound to 6-position of N-acetylglucosamine in the reducing end through  $\alpha$ -bond in the complex type N-glycoside-linked sugar chain are knocked out.

24. **(Currently Amended)** The transformant according to claim 22-~~or 23~~, wherein the enzyme relating to synthesis of an intracellular sugar nucleotide, GDP-fucose, is an enzyme selected from the group consisting of GDP-mannose 4,6-dehydratase (GMD) and GDP-4-keto-6-deoxy-D-mannose 3,5-epimerase (Fx).

25. **(Original)** The transformant according to claim 24, wherein the GDP-mannose 4,6-dehydratase is a protein encoded by a DNA selected from the following (a) or (b):

- (a) a DNA comprising the nucleotide sequence represented by SEQ ID NO:1;
- (b) a DNA which hybridizes with a DNA consisting of the nucleotide sequence represented by SEQ ID NO:1 under stringent conditions and which encodes a protein having GDP-mannose 4,6-dehydratase activity.

26. **(Original)** The transformant according to claim 24, wherein the GDP-mannose 4,6-dehydratase is a protein selected from the group consisting of the following (a), (b) and (c):

- (a) a protein comprising the amino acid sequence represented by SEQ ID NO:2;
- (b) a protein consisting of an amino acid sequence wherein one or more amino acid(s) is/are deleted, substituted, inserted and/or added in the amino acid sequence represented by SEQ ID NO:2 and having GDP-mannose 4,6-dehydratase activity;
- (c) a protein consisting of an amino acid sequence which has 80% or more homology to the amino acid sequence represented by SEQ ID NO:2 and having GDP-mannose 4,6-dehydratase activity.

27. **(Original)** The transformant according to claim 24, wherein the GDP-4-keto-6-deoxy-D-mannose 3,5-epimerase is a protein encoded by a DNA selected from the following (a) or (b):

- (a) a DNA comprising the nucleotide sequence represented by SEQ ID NO:3;
- (b) a DNA which hybridizes with a DNA consisting of the nucleotide sequence represented by SEQ ID NO:3 under stringent conditions and which encodes a protein having GDP-4-keto-6-deoxy-D-mannose 3,5-epimerase activity.

28. **(Original)** The transformant according to claim 24, wherein the GDP-4-keto-6-deoxy-D-mannose 3,5-epimerase activity is a protein selected from the group consisting of the following (a) to (c):

- (a) a protein comprising the amino acid sequence represented by SEQ ID NO:4;
- (b) a protein consisting of an amino acid sequence wherein one or more amino acid(s) is/are deleted, substituted, inserted and/or added in the amino acid sequence

represented by SEQ ID NO:4 and having GDP-4-keto-6-deoxy-D-mannose 3,5-epimerase activity;

(c) a protein consisting of an amino acid sequence which has 80% or more homology to the amino acid sequence represented by SEQ ID NO:4 and having GDP-4-keto-6-deoxy-D-mannose 3,5-epimerase activity.

29. **(Currently Amended)** The transformant according to claim 22-~~or 23~~, wherein the enzyme relating to a modification of a sugar chain in which 1-position of fucose is bound to 6-position of N-acetylglucosamine in the reducing end through  $\alpha$ -bond in the complex type N-glycoside-linked sugar chain is  $\alpha$ 1,6-fucosyltransferase.

30. **(Original)** The transformant according to claim 29, wherein the  $\alpha$ 1,6-fucosyltransferase is a protein encoded by a DNA selected from the group consisting of the following (a) to (d):

- (a) a DNA comprising the nucleotide sequence represented by SEQ ID NO:5;
- (b) a DNA comprising the nucleotide sequence represented by SEQ ID NO:6;
- (c) a DNA which hybridizes with a DNA consisting of the nucleotide sequence represented by SEQ ID NO:5 under stringent conditions and which encodes a protein having  $\alpha$ 1,6-fucosyltransferase activity;
- (d) a DNA which hybridizes with a DNA consisting of the nucleotide sequence represented by SEQ ID NO:6 under stringent conditions and which encodes a protein having  $\alpha$ 1,6-fucosyltransferase activity.

31. **(Original)** The transformant according to claim 29, wherein the  $\alpha$ 1,6-fucosyltransferase is a protein selected from the group consisting of the following (a) to (f):

- (a) a protein comprising the amino acid sequence represented by SEQ ID NO:7;
- (b) a protein comprising the amino acid sequence represented by SEQ ID NO:8;
- (c) a protein consisting of an amino acid sequence wherein one or more amino acid(s) is/are deleted, substituted, inserted and/or added in the amino acid sequence represented by SEQ ID NO:7 and having  $\alpha$ 1,6-fucosyltransferase activity;
- (d) a protein consisting of an amino acid sequence wherein one or more amino acid(s) is/are deleted, substituted, inserted and/or added in the amino acid sequence represented by SEQ ID NO:8 and having  $\alpha$ 1,6-fucosyltransferase activity;
- (e) a protein consisting of an amino acid sequence which has 80% or more homology to the amino acid sequence represented by SEQ ID NO:7 and having  $\alpha$ 1,6-fucosyltransferase activity;
- (f) a protein consisting of an amino acid sequence which has 80% or more homology to the amino acid sequence represented by SEQ ID NO:8 and having  $\alpha$ 1,6-fucosyltransferase activity.

32. **(Currently Amended)** The transformant according to ~~any one of claims 21 to 31~~, wherein the host cell is a cell selected from the group consisting of the following (a) to (h):

- (a) a CHO cell derived from Chinese hamster ovary tissue;
- (b) a rat myeloma cell line YB2/3HL.P2.G11.16Ag.20 cell;



- (c) a mouse myeloma cell line NS0 cell;
- (d) a mouse myeloma cell line SP2/0-Ag14 cell;
- (e) a BHK cell derived from Syrian hamster kidney tissue;
- (f) a human leukemia cell line Namalwa cell;
- (g) an embryonic stem cell;
- (h) a fertilized egg cell.

33. **(Currently Amended)** The transformant according to ~~any one of claims 21 to 32~~, wherein the transformant is FERM BP-8499.

34. **(Currently Amended)** The transformant according to ~~any one of claims 21 to 32~~, wherein the transformant is FERM BP-8500.

35. **(Currently Amended)** A process for producing the fusion protein composition according to any one of claims 1 to 20, which comprises culturing ~~the transformant according to any one of claims 21 to 34~~ a transformant obtainable by introducing a DNA encoding the fusion protein according to claim 1 into a host cell, in a medium to form and accumulate the fusion protein composition in the culture, and recovering and purifying the ~~antibody~~ fusion protein composition from the culture.

36. **(Currently Amended)** The ~~antibody~~ fusion protein composition according to ~~any one of claims 1 to 20~~, which is obtainable by the process according to

claim 35.

37. **(Currently Amended)** A medicament comprising the fusion protein composition according to ~~any one of claims 1 to 20 and 36 as an active ingredient~~ and a pharmaceutically acceptable carrier.

38. **(Currently Amended)** ~~An agent~~ A method for preventing or treating tumor, inflammatory diseases or autoimmune diseases, comprising administering to a subject in need thereof an effective amount of the fusion protein composition ~~as an active ingredient according to any one of claims 1 to 20 and 36~~.

39. **(Currently Amended)** ~~The agent for preventing or treating the diseases~~ method according to claim 38, wherein the tumor is blood tumor or cancer.